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Power Demand Forecasts Revised Up for Third Year Running, Led by Data Centers

John D. Wilson, Sophie Meyer,
Zach Zimmerman, and Rob Gramlich

November 2025

EXECUTIVE SUMMARY

Findings, Context and Implications

Five-Year Load Growth Up Six-Fold to 166 Gigawatts

The 166 GW forecast is equivalent to adding 15 times the peak load of New York City.

THE ERA OF FLAT POWER DEMAND IS BEHIND US …

Electricity usage is forecast to grow by an average of 5.7% per year over the next five years, with peak demand growth forecast at 166 GW, a 3.7% annual rate.

- Over the past three years, the 5-year forecast of utility peak load growth has increased by more than a factor of six, from 24 GW to 166 GW.
- Electricity use is forecast to increase even more quickly than peak power demand. By 2030, forecasts indicate that **total electricity use will increase by 32%**.
- The higher growth rate for electricity use likely reflects high load factors of data centers as well as forecast changes in off-peak energy use by other customers.

Data centers are the largest driver of demand and energy growth, accounting for about 55% of demand growth in utility load forecasts over the next five years.

- Even though smaller than data center growth, new load for industrial / manufacturing, oil & gas / mining, and other load types is large compared to recent decades.

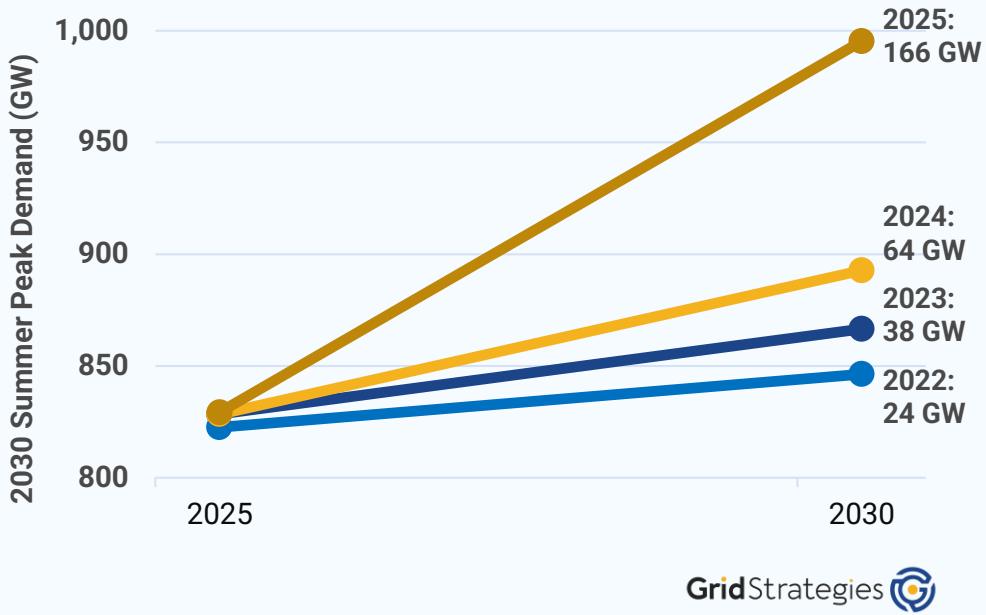
The data center portion of utility load forecasts is likely overstated by roughly 25 GW, based on a review of reports published by market analysts.

- This discrepancy indicates that utility forecast practices need improvement to better reflect the probability of projects completing, their total loads, supply constraints, or timing of load growth.

AND FORECAST CONTINUES TO GROW …

5-year Nationwide Summer Peak Growth

Aggregate of Forecasts Submitted to FERC in 2022-2025



Post FERC 714 Adjustments:
SPP: SPP, 2025 Integrated Transmission Planning Assessment Report, Draft v. 0.3 (October 6, 2025).

Data Center Demand Driving Peak Load Growth

DATA CENTERS DRIVE ABOUT 55% OF FORECAST GROWTH

Of the 166 GW of forecast peak load growth, *roughly* 90 GW are linked to data centers.

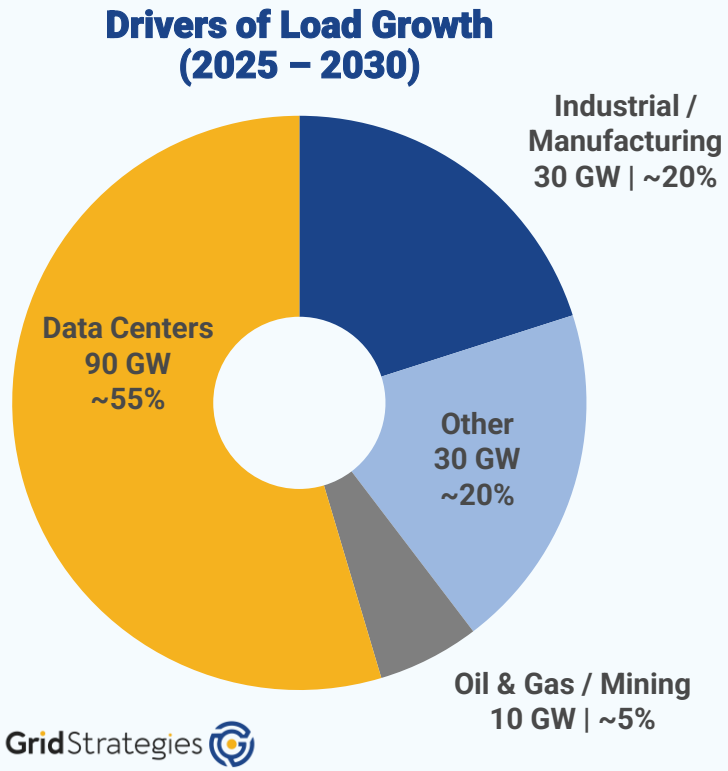
- Very few utility load forecasts differentiate data center types. While some break out crypto mining facility load, not enough do so to provide a useful national estimate for this subcategory. Notably, artificial intelligence (AI) load is not categorically tracked in any publicly available utility forecast.
- However, data center market analysts indicate that data center growth is unlikely to require much more than 65 GW through 2030. Similar growth is shown in one proprietary database of data center projects. This suggests that either the timing or the magnitude of FERC-submitted load forecasts **collectively overstate data center-driven load growth by about 40%**.

Industrial and manufacturing drives about 30 GW, with oil & gas and mining sectors contributing perhaps 10 GW more.

- While utility load forecasts often provide detail for subsectors, these practices are not consistently applied. It is not feasible to provide further detail at the national level, nor can a breakdown for energy use be estimated.

Other drivers, representing about 30 GW of growth, include general residential and commercial growth (building electrification), EV charging (transportation electrification), and other factors.

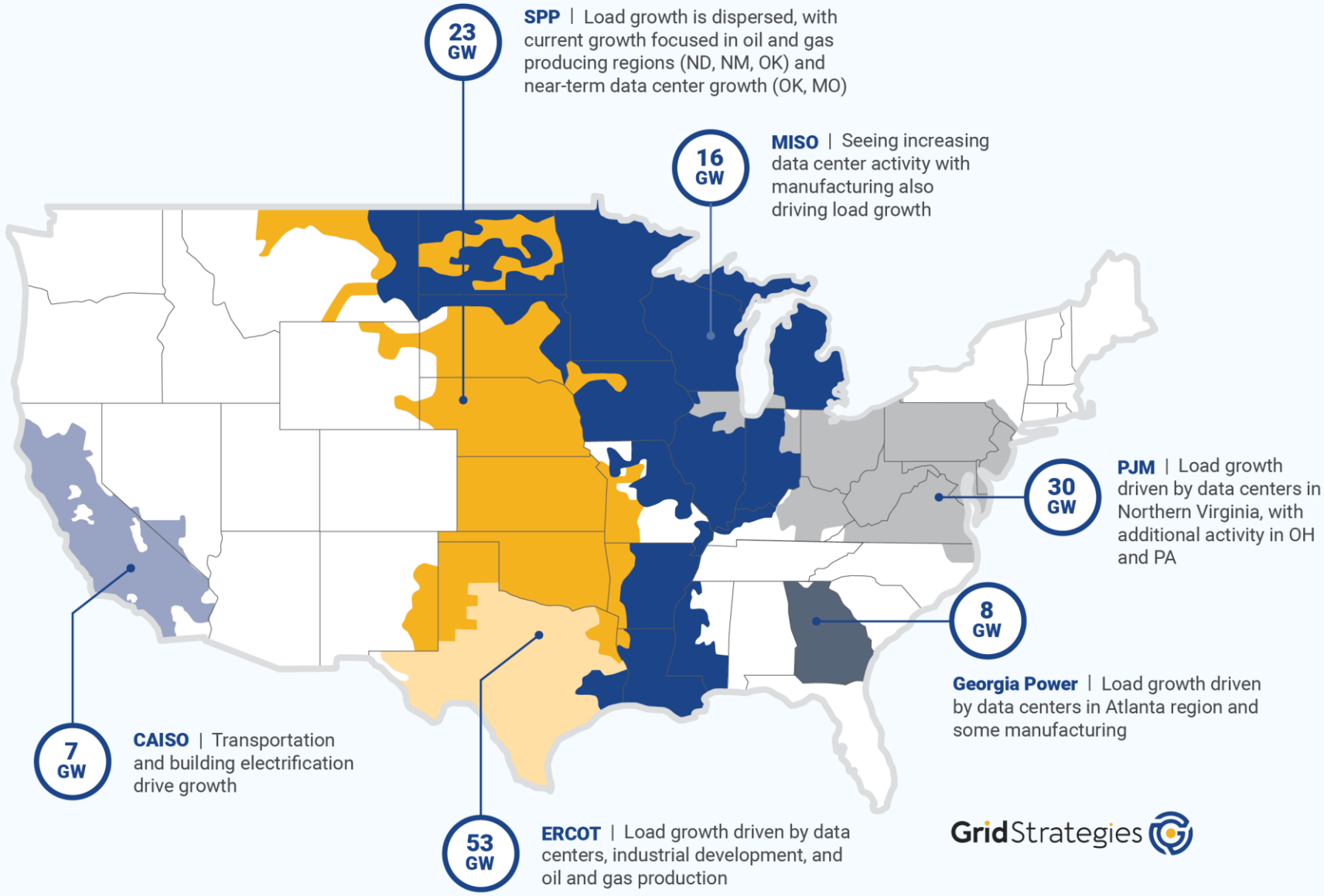
- Many load forecasts had roughly *zero* growth for these other load types, while as much as half of some other forecasts were attributed to these factors collectively.
- This analysis required professional judgement to interpret available data. Useful forecast differentiation was available (or inferred) for forecasts representing about 90% of national load.



Six Regions Driving Load Growth Through 2030

While load growth is increasingly being forecast by most planning entities, six regions represent over 80% of projected five-year growth. Numbers indicate forecast five-year growth in summer peak.

This helps explain why it is important to focus on load forecast practices in the regions CAISO, ERCOT, PJM, and SPP that make up the majority of load and load growth in the U.S.



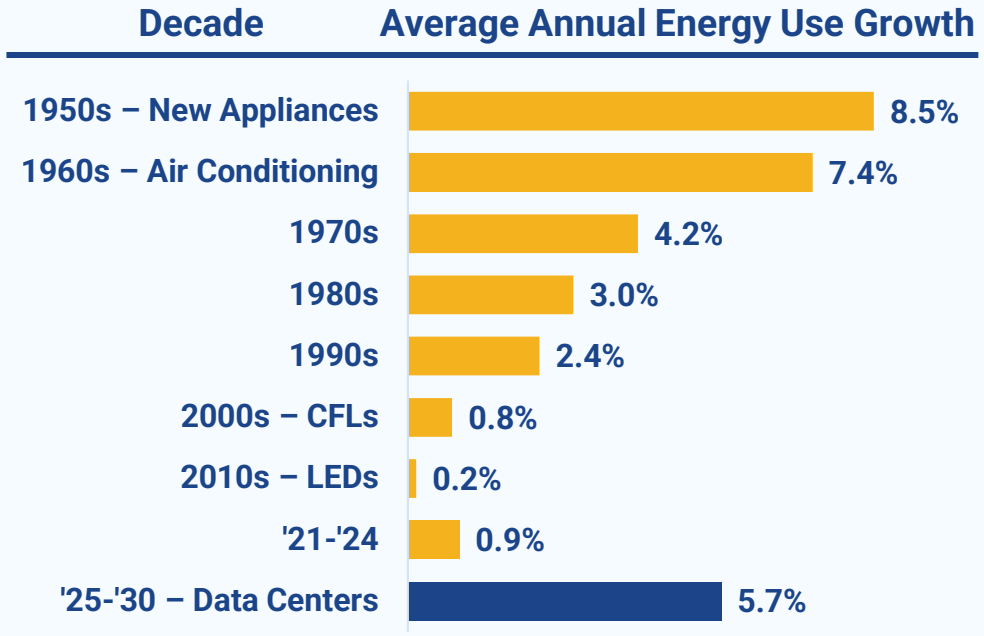
A Scramble to Respond to Growing Energy Demand

For over two decades, the power industry was in a low growth period, well below 1% per year. If current planning entity forecasts are correct, **electricity usage will increase at an annual rate of 5.7% per year** over the next five years, with **peak demand increasing by 3.7% annually** during that same period. While utility capital investment has grown steadily over the past decade, achieving this higher growth rate would require the electricity industry to plan and build new generation and transmission capacity at more than six times the rates seen in recent years.

Expanding the grid is critical to meeting high load growth and enabling the development of strategic industries while maintaining reliability. Lack of sufficient transmission within and between regions will constrain the grid's capacity to meet all forecast power demand.

- According to FERC data, the U.S. built 888 miles of new 345-kV+ transmission last year.
- This is a higher rate of build-out than in 2023, during which only 322 miles were constructed.
- Both years fall far short of the ~5,000 miles/year of high-capacity regional transmission indicated as necessary by the DOE's 2024 National Transmission Planning Study (which did not incorporate this load growth).

The 2025-2030 growth forecast may be an overestimate…or an underestimate. Utility forecasters are still adapting to surging large loads, and **uncertainty remains high**, making it difficult to agree on planning scenarios, finance manufacturing, and complete the construction of transmission and generation. Even conservative growth trajectories outpace recent years and would require substantial grid expansion to accommodate.



SOURCES | NERC, 2024 Long-Term Reliability Assessment (December 2024), p. 31 and Supplemental Table F.
Edison Electric Institute, 2024 Financial Review (July 2025).
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U.S. Energy Information Administration, Monthly Energy Review Table 7.6 (Sept 2025).

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Energy Use Growth Forecast is 50% Larger than Peak Load

It isn't just the scale of load growth that matters: The high-energy character of forecast load growth will change the way planners expect the grid to operate.

- Energy use is forecast to grow at 5.7% annually over the next five years and peak load growth is forecast to grow at 3.7%.
- The higher growth rate for energy can be measured as a 96% load factor for new energy and peak demand. A load factor is a ratio of average energy use to peak load.
- Today, the US system operates at about an 60% load factor, up from 58% just three years ago and forecast to reach 66% in 2030.

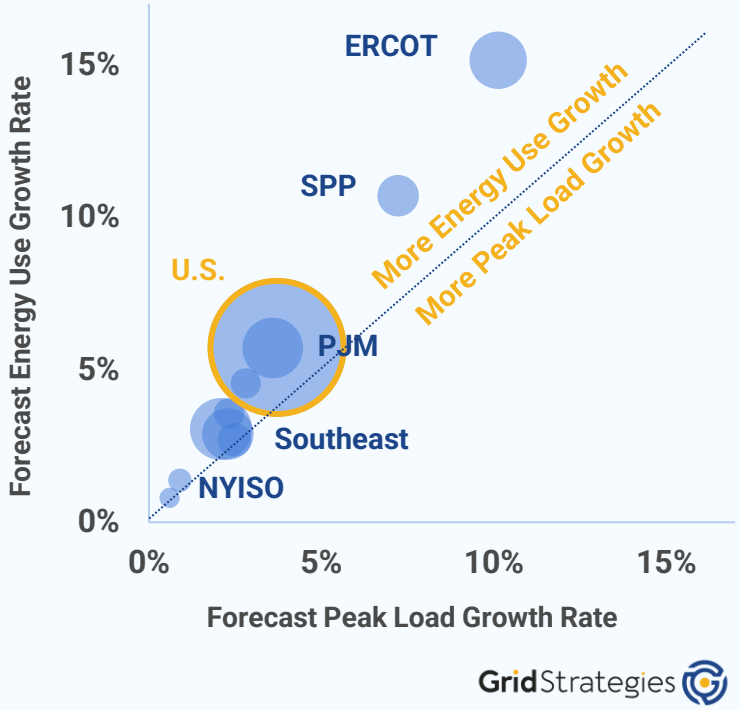
Likely drivers of this shift include data centers, growth in off-peak energy use, and problematic forecasting practices for large loads.

- Data centers generally operate at an above-average load factor. For example, Dominion Virginia reported an 82% load factor for large data centers in 2024 and Duke Energy states that it plans for new large loads to have an 80% load factor. It appears that some large load forecasts may use higher values, perhaps as high as 100%, which is unrealistic.
- Off-peak energy use can drive up the load factor for new energy and peak demand. For example, in NYISO, electrification of winter heating load is driving up energy use, but not the summer peak. This results in NYISO's forecast for "new load" to have a load factor of 150%.

A high load factor drives power supply planning to provide both capacity and energy.

- New capacity is typically provided by battery storage or peaking gas-fueled generators.
- New energy is typically provided by solar, wind or high-load-factor gas-fueled generators.

Energy Use is Growing Faster than Peak Load



SOURCES | Dominion Virginia, Response to PEC Question 1-15 (June 2025). Duke Energy, 2025 Carolinas Resource Plan (October 2025), Appendix D.

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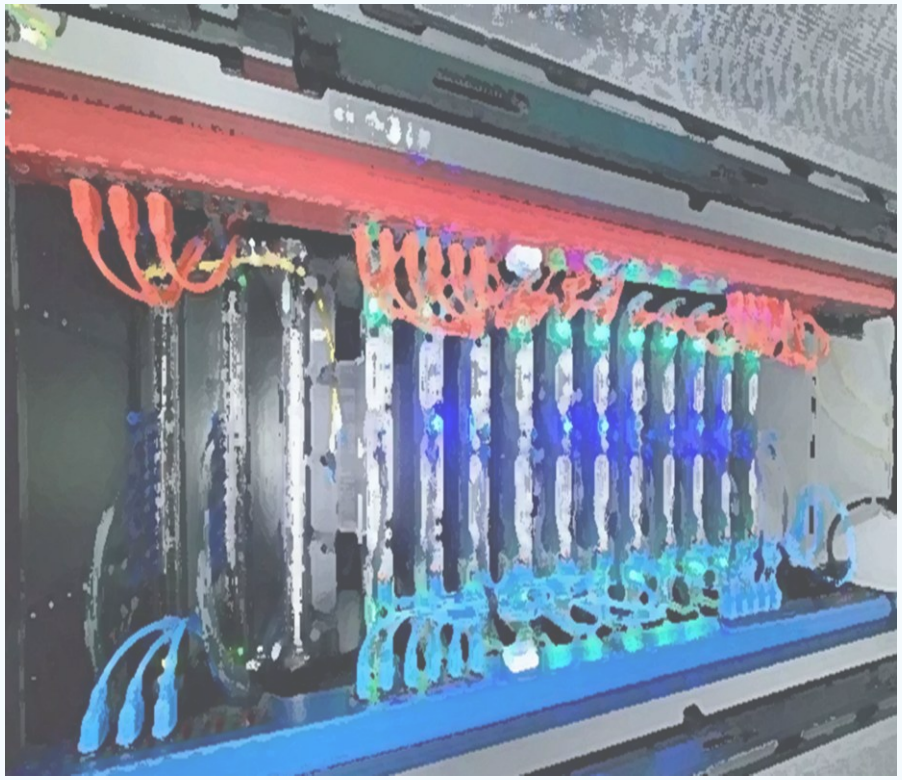
Demand Growth Now Mainly Driven by Data Centers



For the past three years, load growth forecasts have grown at an exponential rate. In 2022 and 2023, manufacturing and electrification shared the stage with data centers. But load growth forecasts for 2025 are now dominated – at least in the near term – by data centers.

Both for the national economy and for the power industry in particular, there is a pressing need to understand the pace and scale of data center buildout. In just four years, the five-year forecast for electric power demand growth has increased by a factor of six.

If the load forecasts are correct – and this is by no means assured – then by 2030, new demand will represent over 15% of total national electricity use. Some smaller utilities are projecting demand to double.

This rate of growth has so many implications, it is impossible to list them here. But for starters, the power industry must grapple with:

- **Generation mix** – Development of new generation requires planning for meeting both energy and demand – not just peaking resources.
- **Uncertainty** – Will the data center industry boom as forecast? Or will growth be tempered by financial, technological, economic or other forces?
- **Supply chain** – Even before the data center boom, the power industry was grappling with long delays in key transmission and other grid equipment deliveries. Now gas power plants are backlogged. Tariffs are raising costs for transmission and generation equipment. Alleviating dependency on offshore manufacturers by expanding domestic manufacturing may be slowing due to cuts to federal support contracts and programs.
- **Delays in selecting and permitting new transmission projects** – Transmission projects are essential not only to connecting new customer loads, but to provide the least-cost resource solution to meet demand in every region of the grid. Changes in policy and practice, such as permitting reform, are required to make this possible.

SECTION ONE

Data Center Demand Continues to Surge

Benchmarks Suggest Data Center Load Forecast Overstated

Utility forecasts of data center growth exceed forecasts produced by other sources and methods.

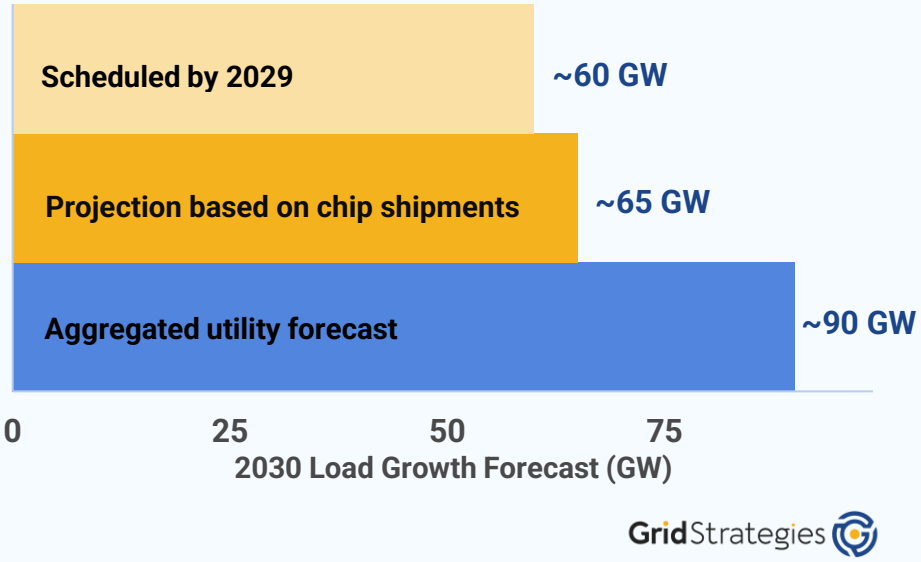
Given lower estimates from other benchmarks, aggregate utility forecasts likely overstate 2030 national demand by roughly 25 GW.

- Data center load forecast for 2030 aggregates to about 90 GW, nearly 10% of forecast peak load, based on Grid Strategies' analysis of utility and regional load forecast publications.
- Cleanview is tracking ~60 GW of data centers scheduled to begin operation before 2029 but may not track all projects.
- In mid-2024, based on anticipated shipments of processing chips for data centers, TD Cowen projected 65 GW of new power demand by 2030.
- Other data center market analysts also use utility-published data and information from data center developers to forecast data center and large load growth. Despite significant variations on scope and methods, all point to growth well below 90 GW.

Considering forecasts with alternative scopes and methods provides an opportunity to gauge potential error in the aggregated utility forecast.

- Utility forecasts reflect territory-specific customer requests and planning assumptions, with just a few reflecting constraints from limited generation and transmission capacity. Over- or under-forecasting can result from correlated assumptions for project realization rates, load realization rates, and project timelines.
- Market analysts' estimates may consider load, financial or supply-chain evaluations, but may not clearly distinguish between a 2030 load forecast and a 2030 in-service forecast.

Alternative Benchmarks for Data Center Load Growth



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EPRI & Epoch AI, Scaling Intelligence: The Exponential Growth of AI's Power Needs (August 11, 2025).
McKinsey, Scaling Bigger, Faster, Cheaper Data Centers With Smarter Designs (August 2025).
S&P Global, Data Center Grid-Power Demand to Rise 22% in 2025, Nearly Triple by 2030 (October 2025).
TD Cowen, Data Centers, Generative AI, & Power Constraints: The Path Forward (May 28, 2024).
Wood Mackenzie, No Turning Back (August 2025).

Rise of GW-Scale Data Centers and On-site Generation

Sixteen GW-scale data centers with an aggregate demand of nearly 30 GW are scheduled to come online in 2026 and 2027.

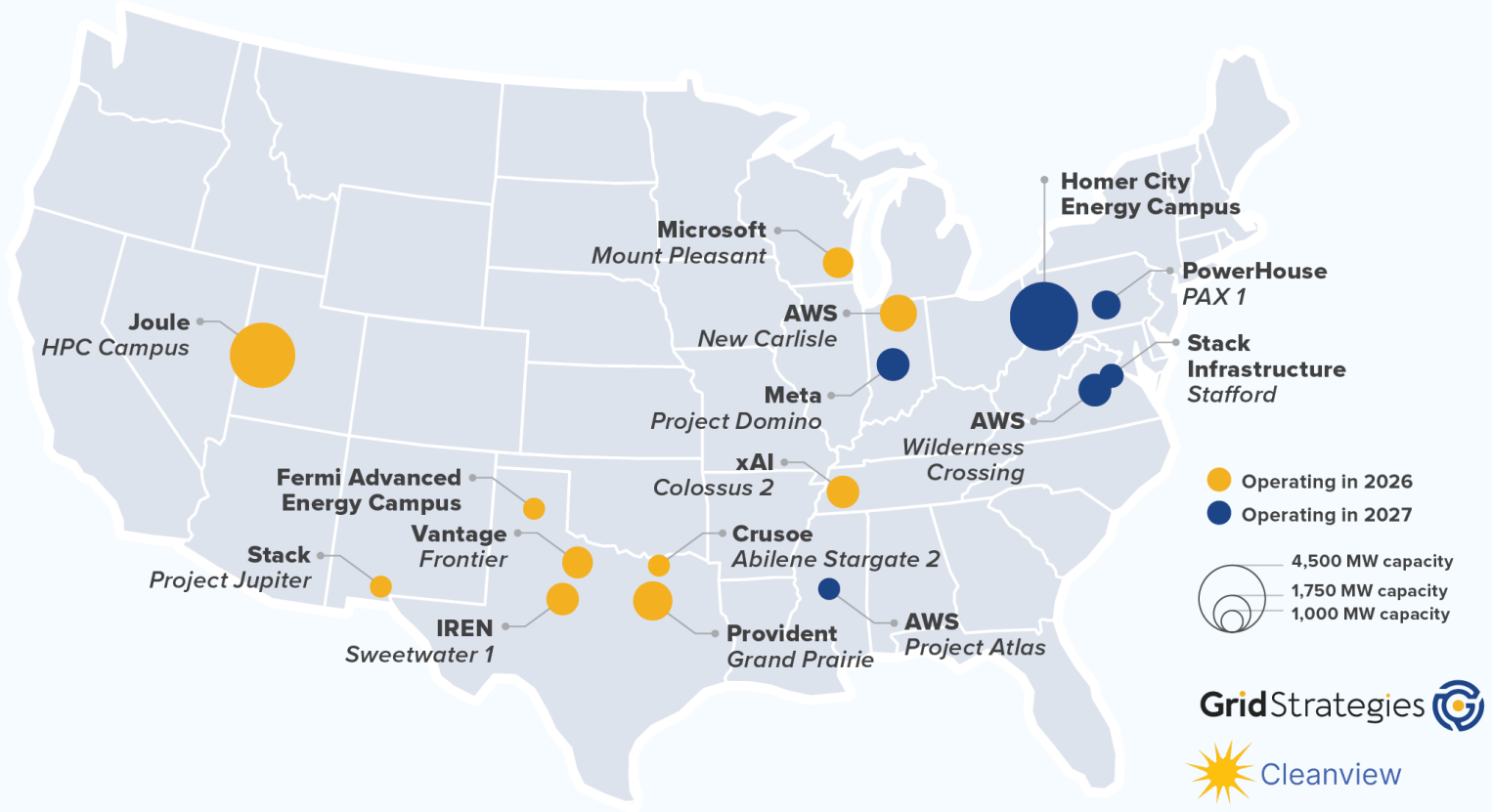
- Of the 16, nearly all have initial permits in place and around half have begun construction.

At least six GW-scale projects expected online by 2027 are planning on-site/co-located generation, including the following:

- Homer City Campus (Indiana County, PA): ~4.5 GW on-site gas
- Joule's "High Performance Compute Campus" in Utah: Caterpillar/Wheeler to provide ~4 GW of on-site gas and batteries
- Crusoe's "Stargate" Phase 2 (Abilene, TX): ~350 MW BTM gas serving the first portion of the ~1.2 GW campus, with more coming
- xAI's "Colossus 2" campus in Memphis: Permitted to use 15 on-site gas turbines, though permits have been appealed

Of data center projects tracked by Wood Mackenzie, just 9% of planned data centers include on-site generation, but those projects represent one-third of the tracked capacity.

GW-Scale Data Centers Expected Online 2026-2027



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Cleanview

SOURCES | Cleanview, Data Center Tracker (Accessed October 17, 2025).
Caterpillar, Joule, Caterpillar, and Wheeler Announce an Agreement to Power America's Growing Data Center Energy Needs (August 7, 2025).
Southern Environmental Law Center, Groups Appeal Permit for xAI's South Memphis Data Center, Decisions Around Unpermitted Methane Gas Turbines (July 16, 2025).
Primoris, Longhorn Power Plant Project: Crusoe Energy Systems (Accessed October 22, 2025).
GE Vernova, Revolutionizing Data Center Power with Flexible, High-efficiency Gas Turbines (Accessed October 22, 2025).
Reuters, GE Vernova to Supply Turbines by 2026 for Planned Natgas Power Plant in Pennsylvania (April 2, 2025).
Wood Mackenzie, US Data Center Pipeline: Q3 2025 (November 2025).

Data Centers: Getting Bigger and Seeking New Markets

Typical data center campuses are growing, from ~40 MW now to >100 MW in coming years, and developers are chasing scarce power into new markets.

GW-scale data centers account for around half of new data center power demand.

- The Cleanview-tracked data centers that are planned to come online before 2030 have an aggregate demand of ~60 GW, ~35 GW of which is from GW-scale projects.

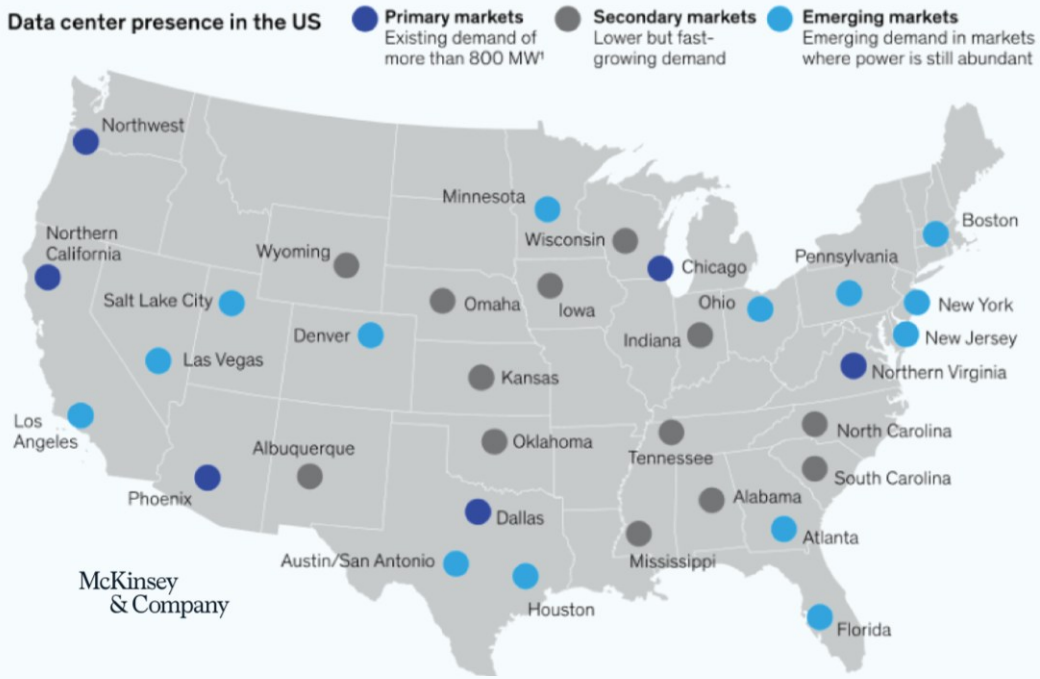
The typical data center facility size, in terms of power demand, is stepping up fast.

- The average operational U.S. data center is roughly 30 - 60 MW
- The average size of a proposed U.S. data center doubled between 2023 and 2024, from 150 MW to 300 MW.
- Announcements and interconnection requests frequently span hundreds of MW to multi-GW scale, reflecting the growth of AI and computational workloads.

Power availability is constrained in primary data center markets like Northern Virginia, Silicon Valley, Dallas-Fort Worth, Phoenix, and Chicago.

- Developers are prioritizing power availability and exploring both secondary markets and regions without historical data center presence.
- Market analysts are tracking data center construction and operations in far more regions than they had in previous years
- Our FERC Form 714 analysis indicates that, of the 66 entities that file load forecasts, over half project >5% summer-peak growth by 2030.
- Some smaller utilities project that data center demand will represent most of their total demand within the coming years.

US Data Center Markets



SOURCES | Boston Consulting Group, Breaking Barriers to Data Center Growth (January 2025).
CBRE Research, Market Profiles: North America Data Center Trends H1 2025 (September 8, 2025).
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Cushman & Wakefield, 2025 Global Data Center Market Comparison (May 2025).
McKinsey, AI Power: Expanding Data Center Capacity to Meet Growing Demand (October 2024).
McKinsey, Data centers: The race to power AI (June 5, 2025)
Wood Mackenzie. Gridlock: the demand dilemma facing the US power industry (October 2024).

SECTION TWO

Additional Key Drivers of Load Growth

Texas | Leading Industrial Growth

About 30% of all recent manufacturing investment has been for the battery and electric vehicle supply chain.

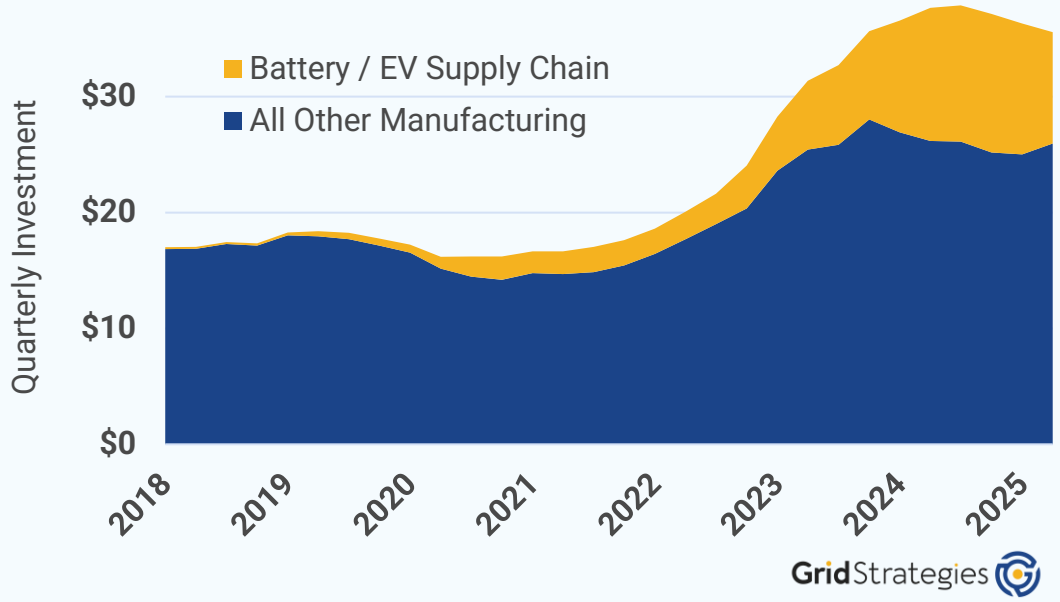
Compared to our prior reports, load forecasts are providing more information about load growth in the industrial sector. Based on these new data:

- **Texas is forecast to receive roughly half** of U.S. industrial electricity demand growth through 2030. The Texas forecast, from ERCOT, includes about 7 GW of general industrial load growth and 8 GW of hydrogen industry load growth.
- Other concentrations of industrial load growth are in MISO (5 GW) and the Southeast, with 4 GW in Georgia and the Carolinas.

Federal policy uncertainty affects investments related to electric vehicles, hydrogen, and semiconductors.

- About 30% of all recent manufacturing investment has been for the battery and electric vehicle supply chain, through Q2 of 2025. These investments peaked in late 2024, according to data from the Clean Investment Monitor.
- ERCOT's load forecast appears to be the only one to include a substantial focus on hydrogen production. Impacts of federal policy changes remain unclear.
- Other policy-driven investments favor Texas and California, which lead the nation in planned semiconductor chip investments.
- To consider these risks in its planning, MISO tracks load related to federal IRA-authorized funding separately from other industrial and manufacturing projects.

Load Driver: U.S. Manufacturing Investment ($ billions)



SOURCES | Rhodium Group / MIT CEEPR, Clean Investment Monitor: Q2 2025 Update (August 28, 2025).
U.S. Bureau of Economic Analysis, Real Private Fixed Investment: Nonresidential: Structures: Manufacturing (September 2025).
ERCOT, Long-Term Load Forecast Update (2025-2031) and Methodology Changes (April 7-8), presentation to Board of Directors.
MISO, Long-Term Load Forecast (December 2024).
Chorzemp;a, M., The CHIPS Act Already Puts America First (March 2025).
Thompson, J. and Kalkunte, P., Industrial Building Boom is Bigger in Texas, Signaling Growth Wave (February 2025), Federal Reserve Bank of Dallas.

Electricity Demand for Oil & Gas Industries Surging

At least $25 billion in transmission projects driven primarily by electricity load to support oil & gas production.

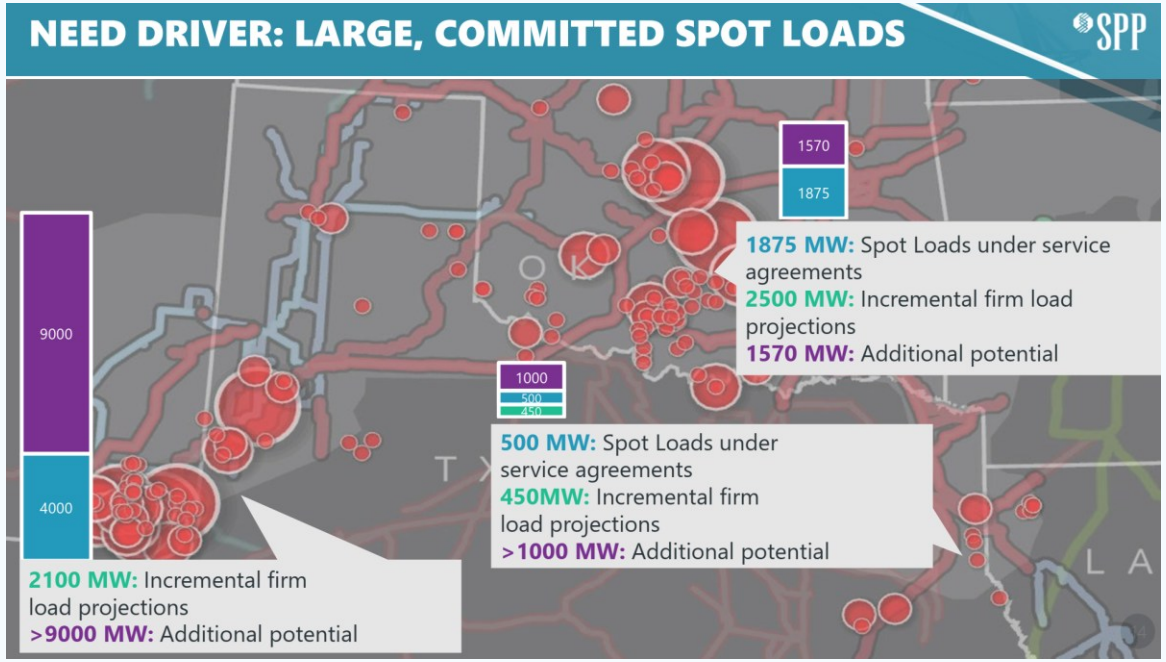
Significant oil & gas industry load growth for 2030 is indicated for ERCOT (3 GW) and SPP (5 GW).

SPP has identified a long-term potential for about 5 GW of growth.

- SPP is considering a recommendation to invest about $15 billion in about 1,800 miles of new 765 kV transmission lines in New Mexico, Texas, Oklahoma and Louisiana, as well as $4 billion in other projects in various locations.
- SPP has also identified oil & gas load growth in North Dakota.

ERCOT's growth in oil & gas load has been anticipated since 2020.

- ERCOT's transmission plan is based in large part on the results from a 2022 study sponsored by several major oil & gas companies. The 2022 forecast indicated growth from 2025 – 2030 of about 4 GW.
- The PUC of Texas has approved a $10 billion plan for about 1,250 miles of new 765 kV transmission lines in Texas to better connect oil & gas production.



SOURCES | ERCOT, ERCOT Permian Basin Reliability Plan Study (July 2024).
PUC Texas, Staff Recommendation on the Voltage Level for the Import Paths to the Permian Basin (April 2025).
S&P Global, Electrifying the Permian Basin, presentation to ERCOT Planning Committee (March 2023).
SPP, SPP's 2025 ITP: MOPC Education Session (September 2025).

California | Leading Electrification of Buildings and Transportation

Load for building and transportation electrification tends to be off-peak, driving up energy faster than peak load.

While some load forecasts explicitly include adjustments for building and transportation electrification, many do not.

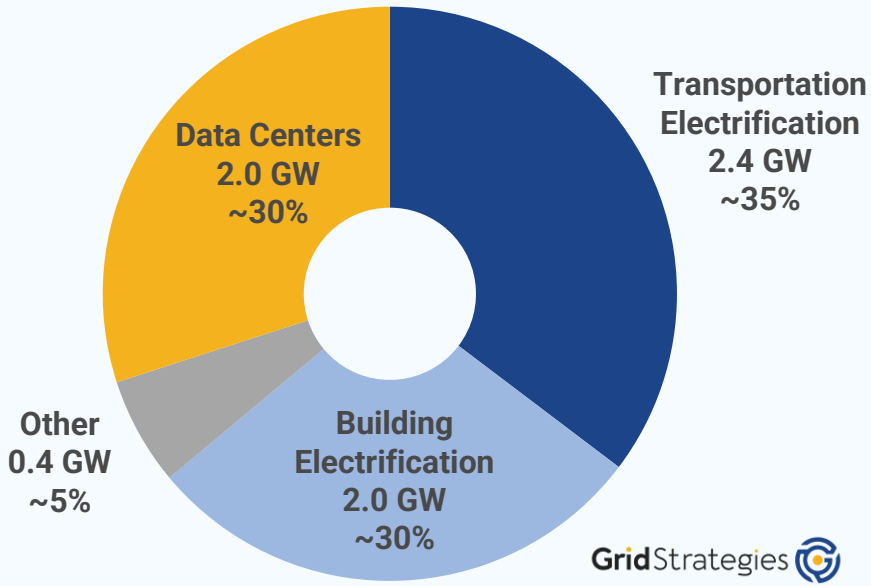
California has the highest forecast impact of electrification, with roughly two-thirds of CAISO's 2030 load growth being attributable to transportation and building electrification – about 5 GW. MISO also forecasts about 2 GW of transportation electrification. In NYISO's load forecast, about 2 GW of load growth – including electrification – is roughly cancelled out by energy efficiency and solar programs.

Regions with high levels of "other" load growth drivers include ERCOT and SPP, which may include significant electrification load growth.

Building electrification will likely have greater impacts during the winter. A recent report by ESIG found that building electrification could switch the New York system from summer to winter peaking by 2035.

Forecasts of transportation electrification are challenged by uncertainty about growth in all types of electric vehicles as well as uncertainty about charging behavior.

CAISO Load Growth Drivers (2025 – 2030)



SOURCES | Energy Systems Integration Group, Grid Planning for Building Electrification (October 2024).
CEC, Final 2024 Integrated Energy Policy Report Update (September 2025).
MISO, Long-Term Load Forecast (December 2024).
NYISO, 2025 Load & Capacity Data Gold Book (April 2025).

SECTION THREE

Utilities and Regional Planners Race to Adapt to the New... Normal?

Are Utility-Filed Forecasts Accurate?

Evidence suggests that, in the aggregate, load forecasts have significantly overstated potential load growth over the next five years.

Collectively, utility and regional planning authority load forecasts could be overestimating data center load growth by 25 GW (40%).

- Grid Strategies' review of alternative benchmark forecasts suggests that near-term data center growth in the United States is unlikely to require much more than 65 GW through 2030, which would reduce forecast demand to 141 GW. (See slide 10.)

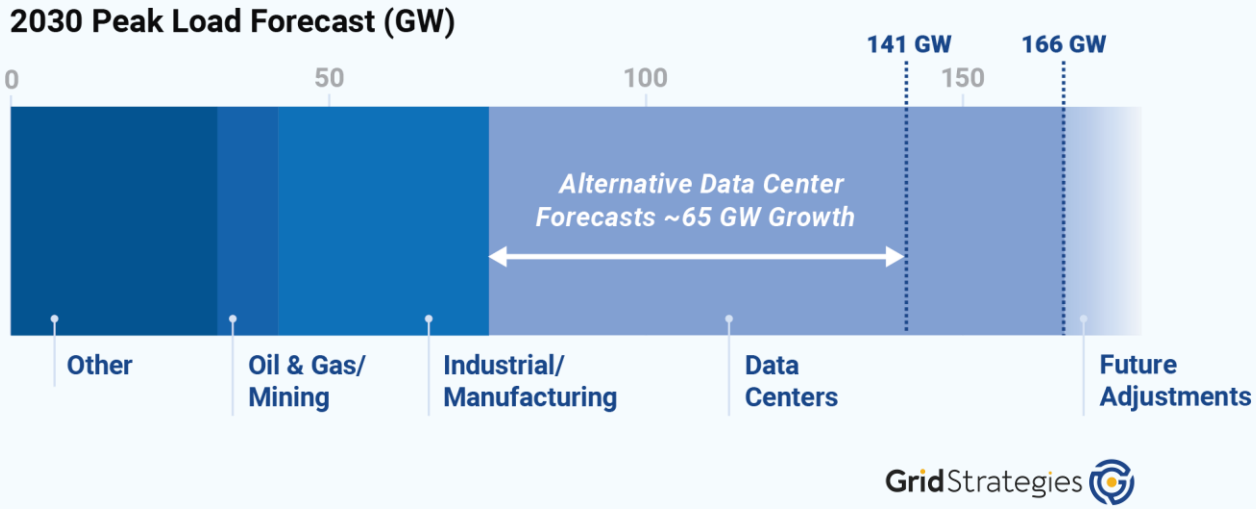
Load forecasts submitted to FERC do not reflect all available information from utilities on data center load growth.

- PacifiCorp's data center load is "missing" because the company no longer includes these new customers in its forecasts because it expects them to provide the resources needed to meet their own energy needs.
- In addition to FERC data, the aggregate load forecast includes a **16 GW increase** for SPP based on its latest transmission plan.
- More updates will come soon. PJM is evaluating forecast adjustments which could add as much as **27 GW** to its 2030 load forecast.

But: Utility forecasts of 2022-2025 growth were revised up, not down.

- Against an 804 GW 2022 baseline, the 2025 peak forecast rose from 822 GW (2022 forecast) to 829 GW (2025 forecast). Thus, load growth increased from a forecast 18 GW to an actual 25 GW (~35%).

Alternative Data Center Forecasts Suggest Lower 5-Year Peak Load Growth



SOURCES | PJM, Total Demand Request for Large Load Adjustment (September 2025).
SPP, *2025 Integrated Transmission Planning Assessment Report*, Draft v. 0.3 (October 6, 2025).
PacifiCorp, Reply Comments, 2025 Integrated Resource Plan (August 2025), Oregon PUC Docket LC 85.

Load Forecasting Practices are Evolving

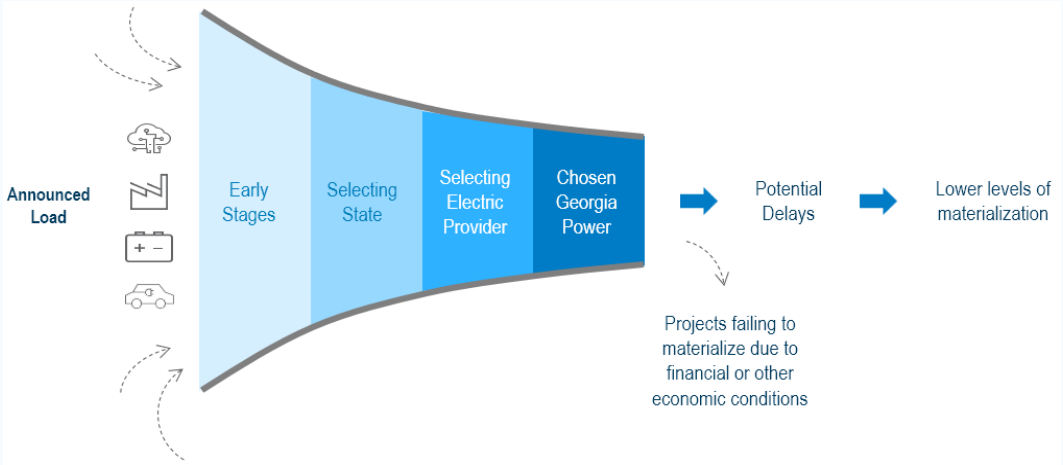
The power industry needs an initiative to develop standard data sources and load forecast methods.

The power industry is rapidly developing methods to build medium- and long-term forecasts for emerging large loads. Load forecasts for residential and small/medium commercial load rely on well-established statistical methods that cannot be used for many of these large loads. As discussed in a **forthcoming report from the Energy Systems Integration Group**, large load forecasts need to quantify the following metrics for known projects as well as growth not matched to a specific project.

- **Project realization**: The rate at which projects included in the load forecast are placed in-service.
- **Load realization**: The forecast peak load, which may vary as the project progresses from interconnection request to full electric service.
- **Energization date**: The beginning of commercial operation by the customer.
- **Load ramping**: The monthly or annual forecast of demand during the startup period of commercial operation.
- **Load factor or load shape**: The load factor indicates actual energy use for a given capacity. More detailed information is provided in a load shape, or the hourly schedule of energy use.

Utilities' first source of data is direct engagement with large load customers, but the quality and specificity of submitted data varies. Often, in developing load forecasts driven by customer-supplied data, utilities apply weighting factors based on professional judgement or historical data experience.

Georgia Power's large load forecast model



Georgia Power's large load forecast model is based on announced load. The model considers uncertainty due to selecting service from another utility as well as potentially not being completed or using as much power as expected.

SOURCES | Georgia Power Company, 2023 IRP Update Load and Energy Forecast (October 2023).
ESIG, Large Load Task Force Report on Load Forecasting (forthcoming).

New Large Load Tariffs Increasingly Common

Utilities, regulators, and lawmakers must balance attracting and serving new large loads with the need to protect existing ratepayers and avoid creating cross-subsidies or stranding assets. Those focused on ratepayer protection typically include the following items.

- **Size Threshold:** Definitions of "large" differ across jurisdictions, but a threshold of 20-100 MW is typical
- **Minimum-bill obligations**: Customers pay, at minimum, for a specified percent of their contracted capacity, even if usage falls short
- **Upgrade cost responsibility**: Customers fund both planning/interconnection studies and incremental grid facilities needed for service
- **Long-term service contracts**: Customers commit to multi-year (often 5-15 year) terms; exit fees are levied in case of early termination
- **Creditworthiness / collateral requirements:** Customers post security, adjusted for credit rating

Example Large Load Tariffs & Laws

Jurisdiction & Instrument	Triggers & Core Provisions	Status
Indiana Michigan Power	• Trigger: ≥70 MW at one plant or ≥150 MW aggregated • Min. bill = 80% of contract capacity or prior peak • Contract ≥12 years (post ramp period) • Credit standards or collateral requirements	Adopted
AEP Ohio "Data Center Tariff"	• Trigger: >25 MW new load/expansions • Min. bill up to 85% of contract capacity • Credit standards or collateral requirements	Active Implementation
Texas SB 6	• Trigger: ≥75 MW (PUCT may set lower) • PUCT to ensure large customers contribute to Ix costs and minimize stranded infrastructure costs	PUCT implementation in progress
Oregon HB 3546 "POWER Act"	• Trigger: >20 MW • OPUC to ensure large users pay for infrastructure costs • Contract ≥10 years (OPUC may require longer)	Awaiting OPUC implementation
Santee Cooper Large-Load Rate	• Trigger: ≥50 MW • Min. bill: full contract cap. for 5 years, then ramps down • Contract: 15 years • Credit standards or collateral requirements	Adopted on temporary basis
Dominion High-Load Customer Terms	• Trigger: ≥25 MW and ≥75% load factor • Min. bill: 85% min. for T&D, 60% min. for generation • Contract of 14 years: (4-year ramp plus 10 years) • Collateral: $1.5M/MW of capacity; exemptions allowed	Proposed

SOURCES | Hogan Lovells, State Legislative and Regulatory Initiatives to Address Concerns Caused by the Surging Power Demand of Data Centers in the U.S. (September 17, 2025).
Indiana URC, Final Order Approving Modifications to Indiana Michigan Power's Industrial Power Tariff, Case No. 46097 (February 19, 2025).
LBNL/Brattle, Electricity Rate Designs for Large Loads: Evolving Practices and Opportunities (January 2025).

CONT. | Oregon Legislature, 2025 Regular Session, HB 3546 — "POWER Act" (enacted June 16, 2025).
PUC of Ohio, Order Approving the Final Tariffs Filed by Ohio Power Company, Case 24-0508-EL-ATA (July 23, 2025).
Santee Cooper, Experimental Large Load Service Schedule L-25-LL (Adopted April 25, 2025).
Texas 89th Legislature, SB 6 — Large-Load Interconnection Standards (enacted June 20, 2025).
Virginia SCC, Direct Testimony of Stan Blackwell, Case No. PUR-2025-00058 (March 31, 2025).

NERC Actions on Large Load

Planned data centers over 1 GW, totaling over 50 GW on individual systems, could cause severe reliability problems.

Large data centers are presenting new, unique challenges to grid reliability. To address these challenges, NERC has developed white papers, published an "industry alert," and issued a draft reliability guideline, which are expected to lead to new reliability standards.

The unique risk posed by large data centers is the impact of large, rapid changes in load. While some industrial demands can also vary rapidly, no others have the potential for the scale of impact as data centers.

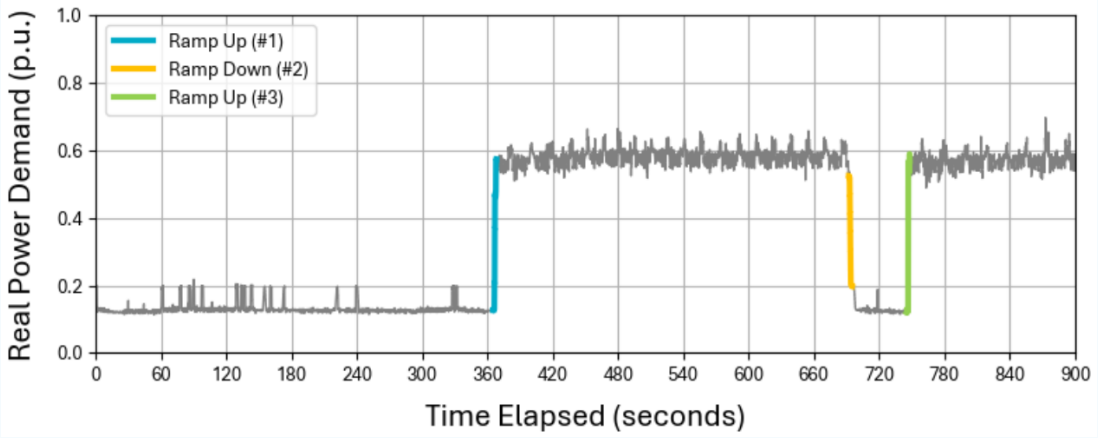
Where large amounts of load suddenly disappear (or reappear), it can require a large, almost instantaneous response by grid operators. With almost 50% of data centers planned for 2030 or sooner being larger than 1,000 MW, grid operators are moving quickly to prepare for new operating challenges.

Large, rapid changes in load can occur for a number of reasons, including:

- **"Ride-through" –** Due to the sensitive nature of computer equipment, data centers automatically activate backup power systems in response to even small changes in voltage. Lightning strikes and other grid faults trigger voltage changes of this size.
- **Normal operations** – AI data center "training models" can vary load significantly on a scale of just seconds, as shown in the figure. A 450 MW data center has been observed to ramp down to 7 MW within 36 seconds.
- **Price response –** Crypto mining operations can increase or decrease load by almost 100%. When they respond collectively, the effect can be challenging to manage.

These changes are not just a challenge for utilities, but also for the small share of data centers considering on-site generation. Rapid fluctuations in demand impact the cost and reliability of operating on-site generation.

AI Training Data Center Demand Curve (EdgeTunePower)



SOURCES | NERC, Characteristics and Risks of Emerging Large Loads (July 2025).
NERC, Industry Recommendation: Large Load Interconnection, Study, Commissioning, and Operations (September 9, 2025).
NERC, Preliminary DRAFT Reliability Guideline: Risk Mitigation for Emerging Large Loads (November 3, 2025).

Summer Peak: Planning Areas Forecasting Most Growth

Five entities, ERCOT, PJM, MISO, SPP, and Georgia Power account for more than three quarters of five-year load growth. ERCOT's forecast alone accounts for over a third of the growth. While load growth remains regionally concentrated, most planning entities across the country anticipate a compound annual growth rate (CAGR) of more than 1% over the next five years.

In total, the planning areas now anticipate 166 GW in load growth over the next five years. This number has dramatically increased over recent years; FERC filings from the previous year anticipated only 66 GW of 5-year growth (2024-2029), which an additional 61 GW in forecast updates brought to 127 GW.

Key changes from our 2024 report:

- Our analysis centers on the scale of anticipated five-year growth rather than year-over-year forecast changes
- Forecast updates published by large planning entities are not yet available, so are not included in this report update. As discussed later in this report, we anticipate further upward adjustments from PJM and SPP in the near future.

Planning Area	2030 Peak Demand		Increase in Forecast (GW)	Forecast 5-year Growth (GW)	Forecast 5-year Growth (%)
	2022 Forecast (GW)	2025 Forecast (GW)			
ERCOT	85.2	138.9	53.7	**53.2**	62.0%
PJM	153.8	183.9	30.1	**29.7**	19.3%
SPP	57.6	82.0	24.5	**24.2**	41.8%
MISO	132.8	145.5	12.7	**15.6**	12.0%
Georgia Power	16.2	25.8	9.6	**8.0**	45.2%
CAISO	50.3	52.9	2.7	**6.8**	14.9%
Duke Energy Carolinas (DEC & DEP)	34.2	37.5	3.3	**3.4**	10.1%
Salt River Project	10.1	11.3	1.2	**2.8**	32.5%
PacifiCorp	14.1	16.3	2.2	**2.0**	13.8%
Florida Power & Light	30.4	27.9	-2.5	**1.6**	5.9%
All other planning areas	261.6	273.1	11.5	**18.7**	7.4%
Total	**846.3**	**979.5**	**133.2**	**166.0**	**20.0%**

Electricity Use: Planning Areas Forecasting Most Growth

The 2025 forecast indicates that electricity use will increase by 29% over the next five years.

- Electricity use is forecast to increase from 4,335 TWh in 2025 to 5,591 TWh in 2030.
- 2022 FERC filings indicated that electricity use would increase 3.7% between 2025 and 2030—the growth rate now anticipated is nearly 8 times that.

The entities projecting the largest five-year growth in peak demand also forecast the biggest increases in electricity use.

- The only exception is Florida Power & Light, which is replaced by Arizona Public Service in the energy top 10.
- ERCOT, PJM, and MISO account for nearly 70% of five-year growth in electricity use.

Planning Area	2030 Electricity Use		Increase in Forecast (TWh)	Forecast 5-year Growth (TWh)	Forecast 5-year Growth (%)
	2022 Forecast (TWh)	2025 Forecast (TWh)			
ERCOT	496.5	983.8	487.3	**497.9**	102.5%
PJM	830.6	1099.6	269.0	**266.8**	32.0%
SPP	303.2	376.3	211.1	**205.1**	66.3%
MISO	693.8	792.5	98.7	**105.4**	15.3%
Georgia Power	90.1	159.4	69.3	**64.1**	67.2%
CAISO	230.7	272.0	41.3	**54.3**	24.9%
Duke Energy Carolinas (DEC & DEP)	176.4	205.5	29.1	**29.8**	17.0%
Salt River Project	43.4	55.1	11.7	**19.7**	55.7%
PacifiCorp	78.1	93.8	15.8	**14.8**	18.7%
Arizona Public Service	40.8	47.9	7.1	**11.9**	33.0%
All other planning areas	1,429.5	1,505.4	75.9	**124.3**	9.0%
Total	**4,413.0**	**5,591.2**	**1,316.2**	**1,394.0**	**32.2%**

SECTION FOUR

Policy Reforms and Strategic Investment Critical to Meet New Load

New Demand Needs New Supply

Surging demand needs matching supply to serve it.

New resources are delayed by a sluggish generation interconnection queue.

- Supply shortages drive capacity costs up. PJM's forward capacity auction for the 2025/26 delivery year cost consumers $14.7B, up $12.5B from the previous auction's $2.2B price tag.
- Grid Strategies estimated that, had PJM brought queued resources online more quickly during the preceding years via proactive transmission planning and streamlined interconnection, it could have saved consumers as much as $7B in that single auction, or **half of the price increase**.

FERC and the regions have taken steps to address interconnection backlogs.

- FERC Order No. 2023 ordered transmission providers to move to a cluster-based study process and increase readiness requirements for a first-ready, first-served approach to studying new generators.
- Across the ISO/RTOs and major transmission operators, reforms – many of which go beyond the scope of FERC Order No. 2023 – are substantially implemented and benefits are beginning to materialize, with some interconnection queues moderating.

Still, data from many regions continues to show long study timelines and low project success rates.

Key Reforms to Address the Generation Interconnection Backlog

Require an entry fee	Create fast track to use existing capacity	Optimize study process	Address construction backlog
• Implement up-front entry fee tied to proactively planned transmission • Provide network upgrade cost certainty from day one	• Publish headroom maps; let most ready projects claim capacity • Simplify access to capacity created by retirements • Allow projects without adverse impacts to proceed	• Right-size upgrade scope for service level • Implement most cost-effective solutions • Align processes across jurisdictions • Automate • Establish independent monitors	• Improve construction reporting • Collaborate with government to create cooperative procurement program & address supply chain bottlenecks

SOURCE | ACORE, Protest of PJM Reliability Resource Initiative (January 8, 2025).
Grid Strategies and The Brattle Group, Unlocking America's Energy: How to Efficiently Connect New Generation to the Grid (August 2024).
Grid Strategies, Penny-Wise and Pound Foolish: PJM's Capacity Auction Demonstrates the Cost Imperative of Simplified and Speedy Interconnection (February 2025).
Wood Mackenzie, 5 key questions about US Grid Interconnection Answered (August 2025).

Getting the Power to the Load: Why Transmission is Critical

Data center load is driving major transmission expansions, some of which appear to be "one-offs".

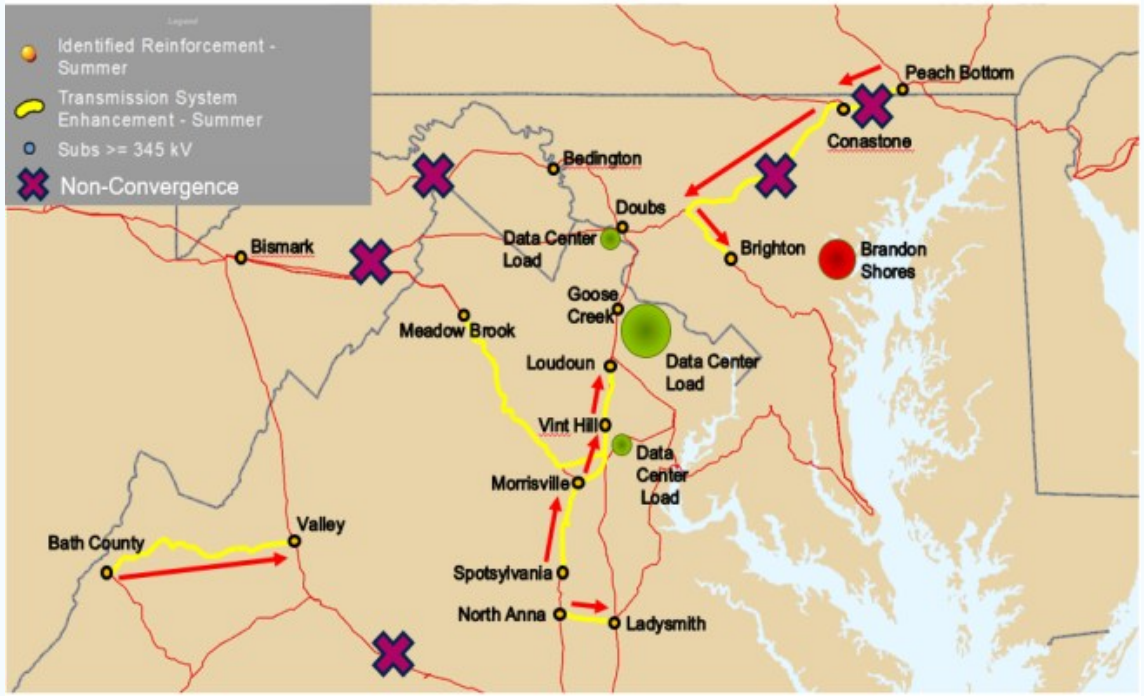
Larger data centers connect directly to high-voltage transmission systems rather than distribution networks, which may require network upgrades.

- In 2023, PJM approved $1.2 billion in regional transmission projects, including 500 kV and 230 kV transmission projects, to support power delivery to local transmission upgrades in Data Center Alley. These projects were part of a $5 billion regional plan, including other transmission projects at least partially driven by data centers.

One-off transmission for GW-scale data centers drive billions in investment.

- **Entergy Louisiana**: Includes a $1.2B, 100-mile transmission project (500-kV and 230-kV) to serve Meta's 2+ GW data center campus. After approval by the Louisiana PSC, Entergy has broken ground on substation construction.
  - Meta will directly fund some interconnection costs while Entergy will rate-base regional transmission upgrades.
- **American Transmission Co. (Wisconsin)**: Proposed $1.4B, 90-mile transmission project (345-kV) would serve the 1.3 GW Vantage Data Center Campus. If approved by state regulator, construction is targeted for 2026-2028.
  - Vantage has committed to funding 100% of transmission costs.

Data Center Load Drives "One-Off" PJM Transmission Investments



SOURCES | Entergy, Entergy Louisiana Breaks Ground on Key Substation to Power Data Center in Richland Parish (June 27, 2025).
Louisiana PSC, Application of Entergy Louisiana for Approval of Generation and Transmission Resources in Connection with Service to a Significant Customer Project in North Louisiana, Docket No. 37425 (October 2024).
Monitoring Analytics, 2024 State of the Market Report for PJM, Section 12 (March 13, 2025).
PJM, Reliability Analysis Report 2022 RTEP Window 3 (December 8, 2023).
PSC of Wisconsin, Application of American Transmission for a Certificate of Public Convenience and Necessity, Docket No. 137-CE-221 (August 26, 2025)

Load Growth Slowly Driving New, Large Transmission Investments

According to FERC, load growth is now the second largest driver of new transmission.

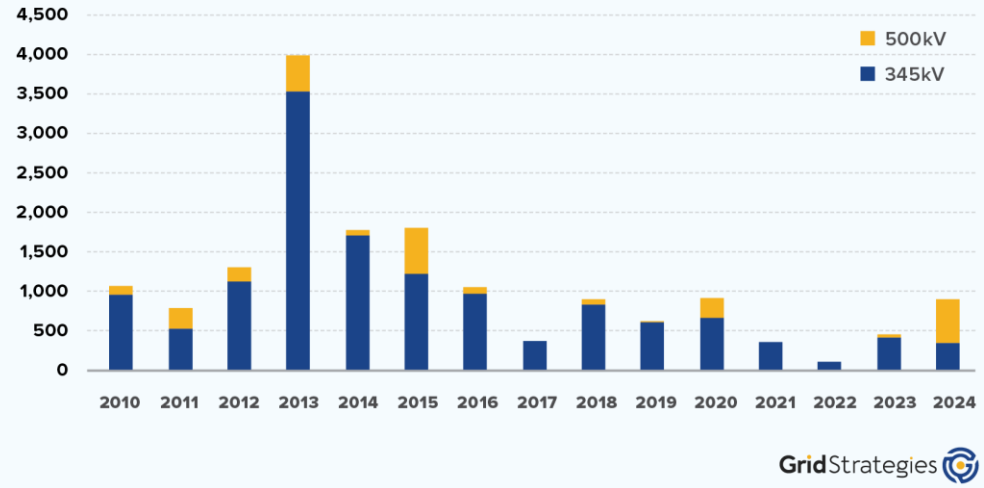
Large-scale transmission is one of the lowest-cost methods to address load growth, but according to FERC data, only 888 miles of new high-capacity transmission (345 kV and up) were built in 2024, which is an improvement but still well short of the estimated 5,000 miles of high-capacity transmission estimated to be needed annually.

Load growth is driving a reversal of this trend. FERC's 2024 State of the Market Report noted 1,000 miles of new transmission, across all voltages, placed into service in 2024 was driven by load growth. Reliability remains the largest driver of new transmission projects.

So far in 2025, significant investments in transmission expansion were approved or are being planned across the country, with load growth often being cited as one of the key drivers of these investments.

- **Texas:** The Public Utility Commission of Texas approved the 765 kV option of the Permian Basin Plan, a $10.1 billion investment with a focus on oil & gas industry load growth.
- **SPP:** SPP's 2025 regional transmission plan is a $8.6 billion investment and includes four 765 kV transmission lines to address load growth from data centers and oil & gas industry load growth.
- **PJM**: PJM approved several 765 kV projects in its $5.9 billion 2024 regional transmission plan driven by load growth from data centers.
- **MISO:** MISO is advancing a $12.4 billion 2025 regional transmission plan, with 61% of the projects being driven by load growth.
- **CAISO:** The 2024-2025 Transmission Plan represents a $4.8 billion investment driven by electrification and data center load growth along with new resource additions.

Miles of High-Capacity Transmission Lines Added Annually



SOURCES | SPP, 2025 Draft ITP (October 2025).
PUCT, Staff Recommendation on Voltage Level (April 2025).
CAISO, 2024-2025 Transmission Plan (May 2025)
MISO, MTEP25 Reliability Planning Scope Overview (September 2025).
PJM, 2024 RTEP Report (Feb. 2025).
Grid Strategies, Fewer New Miles (July 2025).

Interregional Transmission Offers Significant Reliability Benefits to Address Load Growth at Lowest Cost

Interregional transmission is often the most affordable option to insulate consumers from the uncertainty of load growth.

Diversity in resource supply and reduction in capacity needs.

- Each region of the country has its own unique mix of resource types and peak demand patterns.
- Interregional transmission can allow utilities to plan to sell power to neighbors to take advantages of these differences.
- A 2023 Grid Strategies study found that increased interregional transfer capability could reduce capacity needs across the Eastern Interconnection and ERCOT by 137 GW.

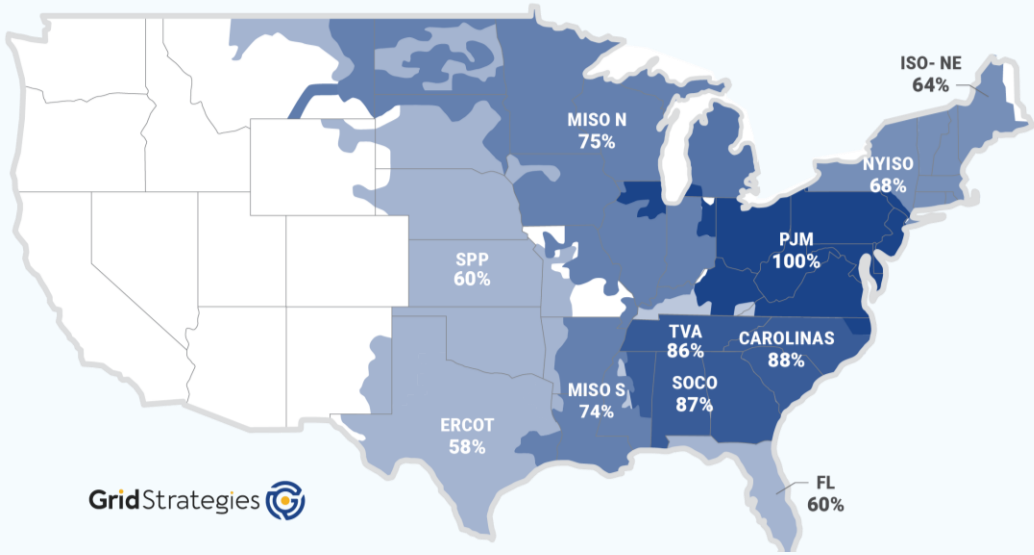
Better availability and significant economic benefits.

- Generation resources can be susceptible to correlated outages during extreme weather events.
- Transmission lines, across voltages, typically achieve about 99.85% availability. Consumers benefit from sharing generation reserves via transmission with higher reliability and lower costs.
- For every $1 invested in NERC's 2024 recommended interregional transmission capacity additions, benefits are estimated to be $4.30-$5.80, with payback under three years.

Insulating consumers from unpredictability in load growth.

- If two neighboring regions have load forecasts off by 1 GW in opposite directions (one over and one under), an interregional transmission line capable of delivering 1 GW of power each way lets both regions utilize the capacity.
- Effectively, excess interregional transmission capacity is an insurance policy against unexpected needs.

While PJM was experiencing its net peak load during the 2014 polar vortex, other regions had spare capacity



SOURCES | NERC, Transmission Availability Data System (accessed July 2025).
Grid Strategies and ACEG, Quantifying a Minimum Interregional Transfer (May 2023).
Grid Strategies, Resource Adequacy Value of Interregional Transmission (June 2025).
Grid Strategies and NRDC, NERC's Recommended Grid Expansion Would Save Consumers Billions (Feb. 2025).
U.S. Department of Energy, National Transmission Planning Study: Executive Summary (2024).

GridStrategies

Fast Solutions to Unlock New Grid Capacity

Advanced Transmission Technologies can be deployed in months, providing a bridge while new transmission is built.

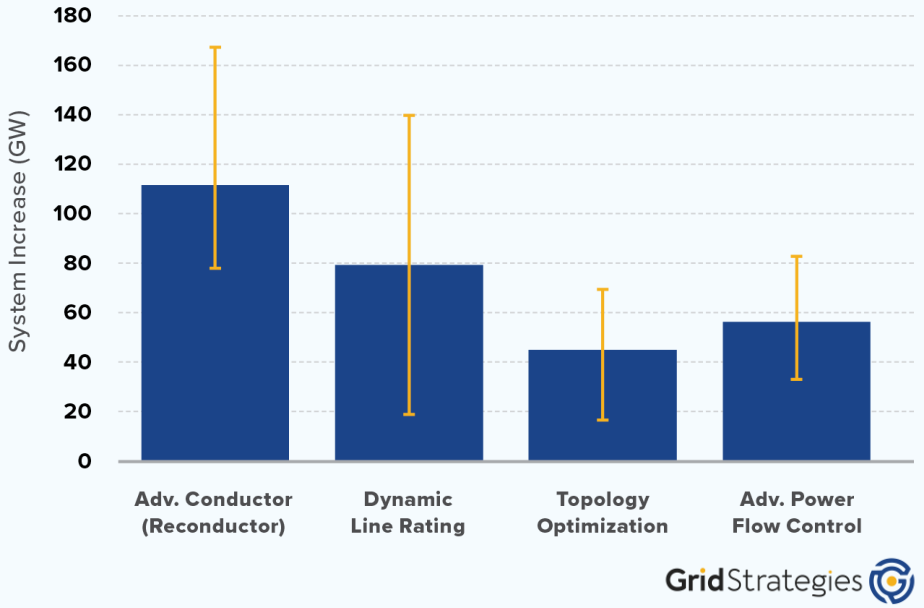
The core benefit of Advanced Transmission Technologies (ATTs): "Speed to capacity."

- ATTs can provide fast solutions to unlock new grid capacity and be a bridge to bring new large loads on more quickly while new transmission, which is still needed, is being built.
- **Within 1-3 months**, dynamic line ratings (DLR) can be deployed and has been shown to provide between 20% to 40% additional capacity. Topology optimization can be used in a similar time frame and can reduce generation curtailments by 50%.
- **Within 1-3 years,** advanced power flow control (APFC) can be deployed and can add hundreds of megawatts of additional capacity, while high performance conductors can be deployed through reconductoring increasing capacity approximately 200%.
- New large loads may only take 1-2 years to construct, but Berkeley Laboratory analysis estimates new generation averages 5 years to connect (interconnection request to commercial operation), and new large-scale transmission can take 6-10 years to construct.

ATTs is an umbrella term for Grid Enhancing Technologies and High Performance Conductors.

- **Grid Enhancing Technologies (GETs)** are hardware, software, or both that dynamically increase the capacity, efficiency, reliability, and safety of power lines faster and at lower cost than traditional grid infrastructure, including DLR, APFC, and topology optimization software.
- **High Performance Conductors (HPCs)** is a term that encompasses modern conductor technologies that have greater performance characteristics when compared to traditional conductors, including increased capacity, higher efficiency, and little or no thermal sag, and include carbon fiber and composite core conductors and superconductors.

The U.S. Department of Energy estimates ATTs can unlock approximately 40-110 GW of new transmission capacity



SOURCES | DOE, Pathways to Commercial Liftoff: Innovative Grid Deployment (April 2024).
WATT and ACORE, Unlocking Power: A Playbook on Grid Enhancing Technologies (October 2024).
AMP and ACORE, Unlocking the Grid: A Playbook on High Performance Conductors (October 2024).
LBNL, Queued Up: 2024 Edition, (April 2024).
MISO, LRTP Tranche 1 Appendix A (2022) and LRTP Tranche 2.1 Appendix A.

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Reform is Needed to Enable Transmission at Scale

In 2013, the U.S. built almost 4,000 miles of new, large-scale transmission, yet today's planning, permitting, and paying frameworks are not delivering.

Planning

- Regions can use Order No. 1920 as an opportunity for proactive, multi-value regional transmission planning.
- Interregional transmission can be instrumental in addressing load growth. Federal policymakers should assess whether policy changes are required.

Paying for Transmission

- Transmission is capital intensive and determining who foots the bill can be complex.
- There are many options to simplify funding. For example, policymakers should evaluate whether clarifying "benefit" definitions (particularly for interregional transmission) and creating an investment tax credit for transmission are beneficial.
- Policymakers can also continue to utilize existing financing tools, such as the Transmission Facilitation Program.

Permitting

- Federal policymakers should consider increasing federal permitting authority, such as by creating primary siting and permitting authority for interstate, high-voltage transmission lines, similar to existing authority for natural gas pipelines and LNG terminals.
- There may be opportunities to reform the federal siting and permitting processes to improve timelines and increase certainty.

Advanced Transmission Technologies (ATTs)

- Embedding ATTs in long-term planning (Order No. 1920), near-term planning (Order No. 2023 and large-load interconnections), operations, and outage mitigation could enhance system performance. Effective implementation of Orders No. 2023 and 1920 would support this goal.
- Policymakers may also consider whether additional near-term planning requirements, incentives, or funding mechanisms are appropriate.

Appendix

Peak Load Growth Rates Increasing Almost Everywhere

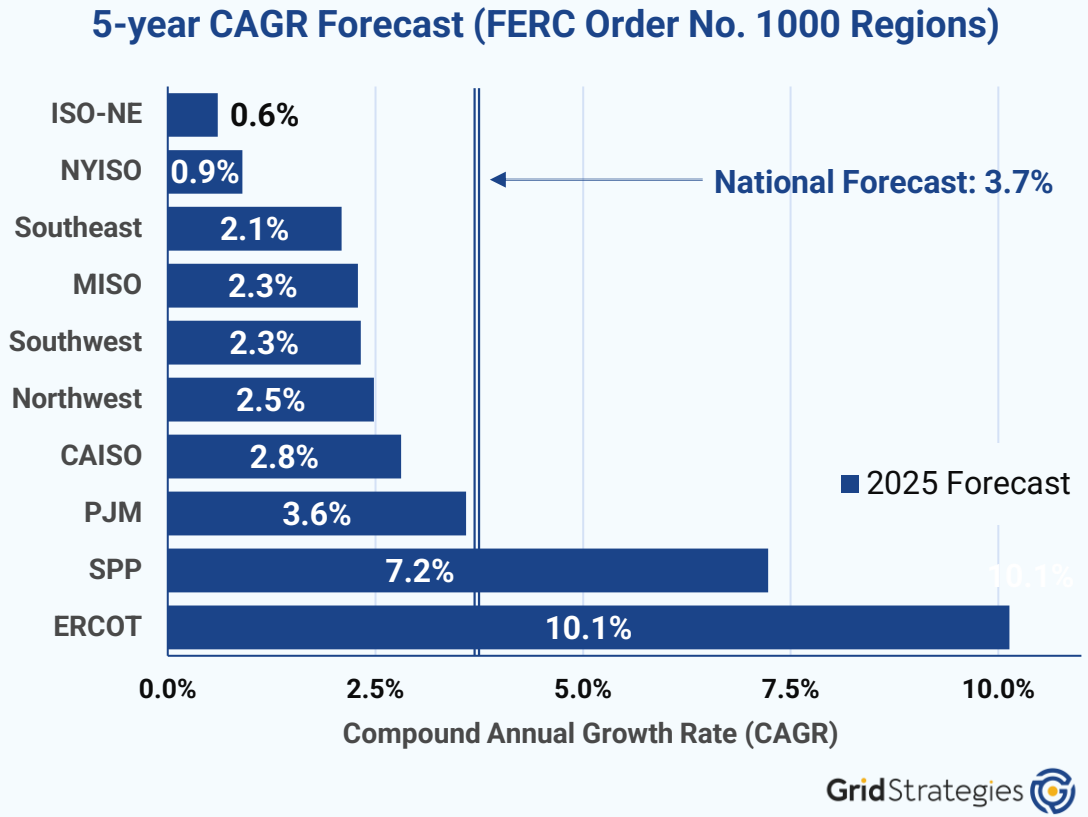
From 2022 to 2025, the 5-year national forecast for peak demand increased each year, with anticipated annual growth rates increasing more than four-fold, from 0.8% to 3.7%.

Annual growth rates are measured using the Compound Annual Growth Rate (CAGR). The CAGR represents the rate at which the initial load forecast or current load needs to grow annually to match the forecasted load in the final year assuming an annually compounded growth rate.

CAGRs can be useful to compare forecasted load growth of different planning areas, regardless of the size of the utility or region.

ERCOT is now forecasting massive growth of 10.1% per year over the coming five years. This growth rate already reflects ERCOT's 62 GW discount to the 2030 load forecast values provided by its member transmission service providers.

There were only two regions where the peak load CAGR decreased in 2025 compared to the 2024 forecast – ISO-NE and the Pacific Northwest. In both regions, long-term load forecasts still project significant load growth. However, it is notable that ISO-NE is seeing little data center activity.



SOURCE | ERCOT, Revisions to Adjusted Load Forecasts (June 4, 2025), Texas PUC Project No. 55999.

NOTE | The "Southwest" region includes some utilities that might be characterized as central western.

2025 Summer Peak Load Forecast

The aggregated 2025 utility forecasts indicate that cumulative summer peak demand will increase from 829 GW in 2025 to 995 GW in 2030, representing 5-year growth of 166 GW nationally. This represents a greater than six-fold increase in projected five-year load growth compared to the 2022 utility forecasts, which projected 24 GW of demand growth during the same period.

All data is sourced from FERC Form 714 filings except the updates, which are sourced from recent utility publications that are final or awaiting a formal approval vote.

The 2025 baseline varies across the forecasts.

Ten Planning Areas with Largest Five-Year Growth in Summer Peak Demand

	2030 Peak Demand (FERC Form 714)							
Planning Area	2022 Forecast (GW)	2023 Forecast (GW)	2024 Forecast (GW)	2025 Forecast (GW)	2030 Peak Demand Update (GW)	'22-'25 Increase (GW)	Forecast 5-year Growth (GW)	Forecast 5-year Growth (%)
ERCOT	85.2	90.3	90.3	138.9		53.7	**53.2**	62.0%
PJM	153.8	157.9	167.9	183.9		30.1	**29.7**	19.3%
SPP	57.6	60.6	63.7	66.3	82.0	24.5	**24.2**	14.5%
MISO	132.8	133.5	139.2	145.5		12.7	**15.6**	12.0%
Georgia Power	16.2	17.4	23.3	25.8		9.6	**8.0**	45.2%
CAISO	50.3	51.3	49.7	52.9		2.7	**6.8**	14.9%
Duke Energy Carolinas (DEC & DEP)	34.2	36.8	37.8	37.5		3.3	**3.4**	10.1%
Salt River Project	10.1	10.2	10.7	11.3		1.2	**2.8**	32.5%
PacifiCorp	14.1	14.2	15.2	16.3		2.2	**2.0**	13.8%
Florida Power & Light	30.4	28.2	27.7	27.9		-2.5	**1.6**	5.9%
All other planning areas	261.6	266.2	267.3	273.1		11.5	**18.7**	7.4%
Total	**846.3**	**866.5**	**892.7**	**979.5**	**995.3**	**148.9**	**166.0**	**20.0%**

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2025 Winter Peak Load Forecast

The aggregated 2025 utility forecasts indicate that cumulative winter peak demand will increase from 720 GW in 2025 to 879 GW in 2030, representing 5-year growth of 159 GW nationally. This represents a greater than five-fold increase in projected five-year load growth compared to the 2022 utility forecasts, which projected 28 GW of demand growth during the same period.

All data is sourced from FERC Form 714 filings. Large load forecast update information rarely makes seasonal distinctions, so no adjustments are included.

The 2025 baseline varies across the forecasts.

Ten Planning Areas with Largest Five-Year Growth in Winter Peak Demand

	2030 Peak Demand						
Planning Area	2022 Forecast (GW)	2023 Forecast (GW)	2024 Forecast (GW)	2025 Forecast (GW)	'22-'25 Increase (GW)	Forecast 5-year Growth (GW)	Forecast 5-year Growth (%)
ERCOT	70.1	78.1	83.0	135.5	65.5	**58.2**	75.1%
PJM	140.1	141.3	152.9	167.2	27.1	**31.1**	22.9%
MISO	110.7	112.3	115.3	123.7	13.0	**16.7**	15.6%
SPP	46.7	50.0	53.2	55.7	9.0	**7.4**	15.3%
CAISO	36.2	37.6	34.6	38.5	2.3	**7.4**	23.7%
Georgia Power	15.8	17.0	21.3	23.6	7.8	**7.3**	45.2%
NYISO	27.7	29.0	27.0	27.1	-0.6	**2.9**	11.9%
Salt River Project	6.1	6.3	4.4	7.2	1.1	**2.7**	59.6%
Duke Energy Carolinas (DEC & DEP)	35.7	36.9	37.8	38.0	2.3	**2.6**	7.3%
ISO New England	25.2	26.6	25.8	22.3	-2.9	**2.2**	11.1%
All other planning areas	223.8	224.4	225.8	239.8	16.0	**20.6**	9.4%
Total	**738.2**	**759.4**	**781.1**	**878.7**	**140.6**	**159.1**	**22.1%**

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2025 National Energy Forecast

The aggregated 2025 utility forecasts indicate that cumulative base energy use increases from 4,335 TWh in 2025 to 5,591 TWh in 2030, representing 5-year growth of 1,256 TWh nationally. This represents a greater than eight-fold increase in projected five-year energy use growth compared to the 2022 utility forecasts, which projected 157 TWh of energy use growth during the same period.

All data is sourced from FERC Form 714 filings, except for SPP (and as reflected in the total). The 2030 SPP energy use forecast is calculated based on the adjustment to SPP's summer peak load forecast, using a load factor derived from the SPP's energy and demand forecast filed on FERC Form 714.

The 2025 baseline varies across the forecasts.

Ten Planning Areas with Largest Five-Year Growth in Base Energy Use

	2030 Energy Use						
Planning Area	2022 Forecast (TWh)	2023 Forecast (TWh)	2024 Forecast (TWh)	2025 Forecast (TWh)	'22-'25 Increase (TWh)	Forecast 5-year Growth (TWh)	Forecast 5-year Growth (%)
ERCOT	496.5	527.0	562.1	983.8	487.3	**497.9**	102.5%
PJM	830.6	878.5	952.6	1099.6	269.0	**266.8**	32.0%
SPP	303.2	332.3	358.6	514.3	211.1	**205.1**	66.3%
MISO	693.8	699.2	756.3	792.5	98.7	**105.4**	15.3%
Georgia Power	90.1	99.7	143.7	159.4	69.3	**64.1**	67.2%
CAISO	230.7	239.3	236.4	272.0	41.3	**54.3**	24.9%
Duke Energy Carolinas (DEC & DEP)	176.4	192.2	201.2	205.5	29.1	**29.8**	17.0%
Salt River Project	43.4	45.1	49.2	55.1	11.7	**19.7**	55.7%
PacifiCorp	78.1	79.3	88.6	93.8	15.8	**14.8**	18.7%
Arizona Public Service Company	40.8	50.7	47.6	47.9	7.1	**11.9**	33.0%
All other planning areas	1,429.5	1,461.0	1,463.4	1,505.4	75.9	**124.3**	9.0%
Total	**4,413.0**	**4,604.4**	**4,859.8**	**5,729.2**	**1,316.2**	**1256.0**	**32.2%**

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Sources and Methods

The primary source for the load forecasts in this report is data filed by planning area authorities on FERC Form 714. The most recent data were published by early fall 2025.

- Data filed on FERC Form 714 require significant effort to obtain and interpret correctly. Because FERC does not appear to review load forecast data filed on Form 714 for accuracy, numerous errors – such as reporting data using the wrong units – are apparent in the planning areas' filings.
- Another challenge is that some planning areas are included within other planning areas. Including "sub-areas" in regional and national totals would effectively double-count some loads. Since FERC does not publish an official rollup of area data that addresses this issue, Grid Strategies staff used professional judgement to avoid such double-counting.

As data become available, Grid Strategies will add additional forecast updates to the FERC Form 714 forecasts, as listed on page 3. Updates represent Grid Strategies' best estimate of the forecast if the planning area published a fully-updated forecast. Updates are included if published as final or are published pending formal approval. Note that Grid Strategies may not have located every publicly available update.

The load growth breakdown between data center, industrial, and other, is based on Grid Strategies' analysis of numerous utility and planning area forecast documents. The estimate of market analysts' forecast of maximum near-term data center load growth is based on Grid Strategies' review of over a dozen publications, some of which are not specifically relied upon or referenced.

Many, but not all, planning areas make information on their load forecasts publicly available. Cited load forecast or related materials were obtained from publicly available sources. Over the past three years, Grid Strategies staff have reached out to load forecast experts at over two dozen relevant utility or system operator to request further details. We appreciate the assistance from those experts whose company policies allowed them to share further information or provide important context.

For peak demand data, Grid Strategies has chosen to focus mainly on summer season data because it is larger than winter at the national level. Focusing on summer peak demand may obscure important planning issues related to winter peak demand. It is also notable that peak demand is most closely related to the need for transmission system buildout. For this 2025 report, Grid Strategies has increased emphasis on total energy use data, including issues raised by the increasing energy-intensity of new loads. When considering the load forecast of any specific region or utility, Grid Strategies would take an even more expansive view.

Grid Strategies also used Cleanview's data-center tracking database, considering only planned data centers with listed power capacity (MW) and an operating year (first planned in-service year) in 2025–2029 to represent 2030 load. Grid Strategies did not adjust these data for load ramping periods.